ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 73 of the	)	
Commission's Rules to Clarify	)	MM Docket No. 93-225
the Definition and Measurement	)	
of Aural Modulation Limits in the	)	
Broadcast Services	)	

93-225

To: The Commission

REPLY COMMENTS OF SOCIETY OF BROADCAST ENGINEERS, INC.

1. The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members in the United States, hereby respectfully submits its reply comments in the above-captioned Notice of Inquiry (NOI) relating to FM peak modulation.

TV AURAL MODULATION LIMITS SHOULD *NOT* BE RELAXED

2. The comments of Larcan-TTC, Inc. urge the Commission to ignore the undesired, spurious modulation caused by common-mode television transmitters that lack correction circuits to limit the generation of spurious signals in the demodulated aural baseband at harmonics of the 15,734 Hertz NTSC horizontal scanning rate. Larcan-TTC points out that common-mode transmitters have been used in translators and LPTV transmitters for years, and claims that false triggering of BTSC stereo television receivers is not a problem. Larcan-TTC believes that the higher-order H sync spurs should simply be ignored when measuring peak deviation of TV aural signals. Larcan-TTC points out that there is no out-of-band spurious signal threat caused by such signals.

3. The SBE disagrees with the Larcan-TTC position, and urges the Commission not to relax the policy so recently established in its September 9, 1993, letter to Mr. Dane Ericksen of Hammett & Edison, Inc. In that ruling the Commission stated

> "With respect to modulation levels in general, observation of and conformance with the proper limits is primarily an operational requirement of the TV station licensee. It is clearly in the best interest of the licensee to select and operate its equipment so as to maximize the quality of its signal and avoid overmodulation. The Commission's rules on modulation limits are clear and enforceable, and as you

noted in your filing, the Commission's Field Operations Bureau will issue a Notice of Violation when those rules are not followed (and contrary to TTC's suggestion, the aural modulation rule does not exclude consideration of incidental cross-modulation). The ultimate burden of proper operation of a television station lies with the station licensee."

4. Many SBE members are transmitter engineers who bear the responsibility of ensuring that the station's transmitter is operating properly. This responsibility is both to the Commission and to the station, which pays the engineer's salary. The SBE is concerned that should the Commission relax its technical standards for TV aural signals, it will result in a whole generation of common-mode transmitters incapable of proper BTSC stereo, Second Audio Program, and Professional channel operation. Individual station engineers will ultimately have to bear the burden of trying to make a common-mode transmitter without aural correction circuits perform properly.

5. The SBE agrees that there is a long history of common-mode operation for TV translators, but feels that this is irrelevant. TV translator stations operate under intentionally relaxed technical standards, to keep transmitter costs low and to minimize the level of expertise required by persons who service these devices. This comparison is further flawed because the level of cross-modulation products become more severe at the much higher power levels required by Part 73 TV Broadcast transmitters. Cross modulation products in the TV aural baseband that may be tolerable at the 100-watt or 1,000-watt power level generally rise to intolerable levels for a high-gain tube required to generate 10,000 to 30,000 watts of RF energy. The relaxed technical standards allowed for low-power, secondary-service TV translators are simply inappropriate for full-service TV broadcast transmitters.

6. The current universe of high-powered common-mode TV transmitters is still relatively small, and the majority of such transmitters that do exist are manufactured by Comark and by Harris, both of which have demonstrated that it is possible to market a transmitter that avoids generating excessive spurious signals in the aural baseband. If the Commission now allows other manufacturers to market transmitters that do not control spurious signals in the aural baseband, it would be unfair to those manufacturers who have complied with the Commission's technical standards. The SBE believes that this could result in a large universe of common-mode transmitters incapable of properly utilizing the aural baseband. In that case, the Commission would receive complaints from the general public. But by that time the damage would have been

done: a large number of common-mode TV transmitters without aural carrier correction circuits would have already been installed. Although these transmitters could most likely be retrofitted with aural carrier correction circuits, the SBE believe that it makes far more sense to "nip the problem in the bud" by not relaxing the TV aural modulation rules.

7. The Commission must realize that when a transmitter manufacturer states its transmitter has been FCC Type Accepted or Notified, some medium and small market UHF TV stations will assume that they don't need to ask pointed questions about the transmitter's aural performance. These stations will also be the least likely to have the test equipment and expertise to check the aural baseband at the time the transmitter is installed. It may not be until the station upgrades its studio to stereophonic and attempts to begin broadcasts in BTSC stereo, or attempts to add a Second Audio Program, that the effects of a demodulated aural baseband contaminated by H-sync spurs will become apparent. Or, alternatively, the station may not realize it has a problem until it receives an Official Notice of Violation from an FCC monitoring van for aural overmodulation. If the station is using a pre-1983, Type Approved TV aural modulation monitor to measure its aural modulation, a common practice for monophonic TV stations, it may not be aware of the additional modulation of the aural carrier caused by the H-sync spurs, as such modulation monitors generally will not respond to aural baseband signals above about 20 kHz.

8. The SBE agrees that spurious signals in the aural baseband have no out-of-band interference potential. But if that were the only concern the Commission could throw out most of its technical standards applying to NTSC transmissions. But that isn't the Commission's only regulatory obligation. Interoperability must also be considered. Indeed, Section 73.1695 of the FCC Rules, "Changes in Transmission Standards", mandates this. Interoperability means not allowing the marketing of a whole generation of transmitters that may never be capable of fully utilizing the additional audio channels permitted by the BTSC system.

SUMMARY

9. The SBE urges the Commission to not exclude from its aural modulation limits for TV stations signals at harmonics of the H-sync scanning rate. To do so would provide an unwise economic incentive for the marketing of a whole generation of short-cut common-mode TV transmitters, and would unfairly penalize those manufacturers that have made the effort to include correction circuits that control the problem.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

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Charles Kelly, President

By _____
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